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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

FAMILY OF ADVANCED BEYOND LINE-OF-SIGHT TERMININALS (FAB-T)

Selected Acquisition Report (SAR)



AS OF FY 2023 PRESIDENT'S BUDGET
U.S. AIR FORCE

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Department of Defense
OFFICE OF PREPUBLICATION AND SECURITY REVIEW

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Mission and Description

The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) program will develop terminals capable of communicating with the Milstar and Advanced Extremely High Frequency (AEHF) satellite constellations. These terminals will be an essential component of the strategic nuclear enterprise.

The Command Post Terminals (CPT) subprogram provides a terminal capable of communicating with the Milstar and AEHF satellites from airborne, ground fixed and mobile locations. The CPT will replace existing Milstar-only terminals for ground fixed and mobile command locations, as well as aircraft.

Executive Summary

Program Highlights since Last Report

Significant Accomplishments:

Program Highlights Since Last Report: The Family of Advanced Beyond Line-of-Sight Terminals (FAB-T) Command Post Terminal (CPT) program made significant progress during CY 2020 and CY 2021, despite its schedule issues. 71 of the total 84 production terminals have been delivered.

There were some delays in CPT fielding activities due to site infrastructure issues, aircraft maintenance schedules and COVID-19 restrictions.

The FAB-T CPT program received Program Executive Office (PEO) certification for Initial Operational Test & Evaluation (IOT&E) on August 14, 2019 and the Air Force Operational Test Agency (OTA) formally started dedicated operational test on October 1, 2019. IOT&E activities have extended beyond the original completion date and are on-going.

The CPT schedule reflects the Program Management Office's (PMO's) best estimates for IOC/FOC and FRP which are subject to change as additional information from the test community and E-6B Program Office is received prior to an official Acquisition Program Baseline (APB) re-baseline. The program will re-baseline at the Full Rate Production decision after IOT&E is complete.

Per 10 USC Section 2430(d)(4)(A), the FAB-T CPT program cannot be certified. The program's current schedule breaches against IOT&E, FRP, IOC and FOC remain subject to external schedule delays and the current funding adequacy is unknown until the events needed to resolve these schedule slips are addressed. The revised APB will provide an updated schedule and commensurate required funding for the program.

There are no significant software-related issues with this program at this time.

Significant Issues:

FAB-T CPT Initial Operational Test & Evaluation (IOT&E) is delayed and the program is in APB breach. The FAB-T CPT program received Program Executive Office (PEO) certification for Initial Operational Test & Evaluation (IOT&E) on August 14, 2019 and the Air Force Operational Test Agency (OTA) formally started dedicated operational test on October 1, 2019. The APB threshold date for completion of IOT&E was October 2020.

An Executive Integrated Test Team (ITT) was conducted on Dec 8, 2021 and the Operational Test Agency (OTA) presented their schedule to complete IOT&E. On-going test challenges are delaying completion of IOT&E.

NOTE: Some of the Significant Accomplishments and Issues for this program are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

History of Significant Developments Since Program Initiation

History of Significant Developments Since Program Initiation	
Date	Significant Development Description
August 1999	DepSecDef initiates FAB-T by Program Decision Memorandum (PDM) as an ACAT II program
September 2002	FAB-T Development Cost Plus Award Fee (CPAF) contract awarded to Boeing
August 2006	USD(AT&L) designates FAB-T as an ACAT ID program
February 2009	FAB-T Key Decision Point-C (KDP-C) satisfies Milestone B requirements
January 2012	USD(AT&L) restructures Boeing FAB-T Development contract to Firm Fixed Price due to costgrowth and schedule delays
September 2012	Alternate Source contract awarded to Raytheon to incentivize competition and performance.
December 2013	Deputy Secretary's Management Action Group (DMAG) decision to proceed with Command PostTerminal (CPT) only; Force Element Terminal (FET) deferred out of FYDP due to lack of platformintegration funding
June 2014	FAB-T CPT Production Firm Fixed Price (FFP) contract awarded to Raytheon
July 2015	Congressional notification from USD(AT&L) to divide FAB-T into two sub-programs (CPT andFET)
September 2015	FAB-T CPT Milestone C approved
October 2015	Contract award for 10 LRIPs (6 Ground Fixed & 4 Airborne terminals with antenna modificationkits)
June 2016	Contract award for 12 LRIPs (6 Ground Fixed & 6 Airborne terminals with antenna modificationkits)
May 2017	Contract award for 20 LRIPs (15 terminals with new Ground Fixed Antenna & 5 Airborne terminals with antenna modification kits)
November 2017	USD(AT&L) redesignates FAB-T as an ACAT IC program
December 2017	FAB-T FET Cost Capability Analysis (CCA) complete
March 2018	USSTRATCOM/J8 prioritizes FET requirements to expedite capability
April 2018	Contract award for 9 LRIPs (Ground Transportable Antennas (GTA))
June 2018	NSA issued FAB-T a one-year interim Authority to Operate (ATO) for FAB-T cryptographic units
June 2018	Capability Development Council (CDC) approves FET CCA
July 2018	MDA signed the revised FAB-T APB
August 2018	Air Force Space Command/A6 approved the FAB-T Type ATO
August 2018	Secretary of the Air Force for Acquisitions (SAF/AQ) reassigns several programs, including FAB-T CPT and FAB-T FET, from Air Force Program Executive Office (AFPEO) for Space to AFPEOfor Nuclear Command, Control, and Communications (NC3)
November 2018	Conducted FAB-T FET Section 804 Vector Check with SAF/AQ; received approval to continuedeveloping the FET Acquisition Strategy as a Rapid Prototyping effort

December 2018	FAB-T CPT and FAB-T FET formally transition from AFPEO for Space to AFPEO NC3, effective December 1, 2018
January 2019	First FAB-T CPT operational installation began
February 2019	MDA approval to increase CPT LRIP quantity from 53 to 84 terminals
February 2019	MDA designated FAB-T FET as a Middle Tier of Acquisitions (Section 804) Rapid Prototyping effort
May 2019	AFSPC approved early operational use for the first FAB-T
August 2019	PEO certified CPT for entry into Initial Operational Test & Evaluation (IOT&E)
September 2019	USAF procured remaining CPTs to meet 84 terminal requirement
December 2019	AFSPC approved early Operational Trial Period for the FAB-T terminal
December 2019	SAE approved "fact-of-life" update to the APB
July 2020	New Antenna configuration Functional Configuration Audit (FCA) Completed
November 2021	Fixed Antenna Production Completed
December 2021	Executive ITT conducted

NOTE: Some of the Significant Developments for this program are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Schedule

Schedule Events

Schedule Events					
Events	Initial Production APB	Current APB Production Category/Objective/Threshold			Current Estimate Or Actual
Contract Award (Increment 1)	Sep 2002		Sep 2002	Sep 2002	Sep-02
System Requirements Review	Jan 2003		Jan 2003	Jan 2003	Jan-03
System Design Review	Jul 2003		Jul 2003	Jul 2003	Jul-03
Conduct Low Data Rate (LDR) System Critical Design Review (CDR)	Feb 2007	CDR	Feb 2007	Feb 2007	Feb-07
Conduct eXtended High Data Rate (XDR) System CDR	Oct 2008	CDR	Oct 2008	Oct 2008	Oct-08
Deliver First LDR System Engineering Development Model (EDM)	Jan 2009	First Asset Delivery	Jan 2009	Jan 2009	Jan-09
LRIP Decision System LDR and XDR	Sep 2015	MS C	Sep 2015	Sep 2015	Sep-15
Operational Test & Evaluation (OT&E) Complete	Dec 2017	IOT&E	Apr 2020	Oct 2020	*
FRP Decision	Apr 2018	FRP	Nov 2020	May 2021	*
IOC	Dec 2019	IOC	Jun 2021	Dec 2021	*
FOC	Dec 2021	FOC	Mar 2023	Sep 2023	*

NOTE: *The last four current estimated events in the above table, associated Schedule Notes and the program’s Significant Schedule Risks are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Performance

This program's Performance information is Controlled Unclassified Information (CUI) and has been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Requirements Source

Revalidated CDD, dated February 15, 2013; CPD approved by Joint Requirements Oversight Council (JROC), August 5, 2015; revised APB approved July 10, 2018

Performance Notes

Given the establishment of the USSF, the FAB-T CPT APB performance criteria has been updated, to reflect USSF in place of AFSPC, where referenced.

Acquisition Budget Estimate

Total Acquisition Cost

Category	Base Year	Development March 2016 APB	Current UCR Baseline December 2019 APB		Budget Estimate PB 2023		Deviation
		Objective (BY\$)	Objective (BY\$)	Threshold (BY\$)	BY\$	TY\$	
RDT&E	2015	1159.0	1,178.1	1,295.9	1,218.0	1,144.3	
Procurement	2015	584.0	657.6	723.4	671.3	731.8	
MILCON	2015	0	0	0	0	0	
Acq. O&M	2015	0	0	0	0	0	
Total	2015	1,743.0	1,835.7		1,889.3	1,876.1	
PAUC	2015	17.254	16.841	18.526	17.333	17.212	
APUC	2015	11.188	7.829	8.612	7.991	8.712	

Total End Item Quantity

Quantity Category	Current APB Quantity	Current Estimate Quantity
Development	25	25
Procurement	84	84

Budget Notes

This section covers the FAB-T CPT subprogram. BY 2015 reflects the approved APB dated December 17, 2019. The deltas from the previous SAR are a result of reflecting the current funding. The procurement funding increased by \$3.4M and enables the program to expedite depot activation activities. Program actuals for RDT&E caused a slight decrease in the current program estimate.

Quantity Notes

For CPT there is a total of 109 systems, which includes 25 Engineering Development Models (12 Boeing and 13 Raytheon) and 84 production systems. All quantities shown reflect the program baseline as approved in the Milestone C ADM. Production planned to date: 71. Actual to date: 71.

NOTE: Some of this program's quantity information is Controlled Unclassified Information (CUI) and has been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Risk and Sensitivity Analysis

Risks and Sensitivity Analysis	
Current Procurement Cost (December 2021)	
1.	The current procurement cost provides sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule, and programmatic risk, and external influence. In particular, it includes the most probable funding and schedule to complete installation of procured systems. It includes funding to cover 6.31% overall cost growth to the remaining installation efforts beyond scope identified in site surveys
Original Baseline Estimate (December 2007)	
1.	Software development risk. The Independent Cost Estimate (ICE) included factors to account for 39% growth in software effort to account for project Maturity and project Complexity. The 2007 ICE represented FAB-T before competitive down select and the splitting of the program into CPT and FET sub-programs, total Life-Cycle Cost: 3,622.2 TY\$M.
Revised Original Estimate (N/A)	
None	
Current Baseline Estimate (December 2019)	
1.	The SCP provides sufficient resources to execute the program under normal conditions, encountering average levels of technical, schedule and programmatic risk, and external influence. In particular, it includes the most probable funding and schedule to complete installation of procured systems. The estimate includes funding to cover 5% overall cost growth to the installation effort beyond scope identified in site surveys. CPT Total Life-Cycle Cost: 3,413.1 TY\$M

Unit Cost

Current Baseline Compared with Current Estimate

Category (\$M)	Current UCR Baseline (December 2019 APB)	Current Estimate	% Change	NMC Breach
PAUC				
Cost	1,835.7	1,889.3	-	
Quantity	109	109	-	
Unit Cost	16.84	17.33	+2.91%	
APUC				
Cost	657.6	671.3	-	
Quantity	84	84	-	
Unit Cost	7.829	7.991	+2.07%	

Original Baseline Compared with Current Estimate

Category (\$M)	Original UCR Baseline (December 2007 APB)	Current Estimate	% Change	NMC Breach
PAUC				
Cost	1,639.1	1,889.3	-	
Quantity	95	109	-	
Unit Cost	17.254	17.33	+0.44%	
APUC				
Cost	939.8	671.3	-	
Quantity	84	84	-	
Unit Cost	11.188	7.991	-28.58%	

Contracts

Contract Data (\$TYM)		
Contract Number	FA8307-12-C-0013	
Effort Number		
Modification Number		
Contract Type	FFP	
Award Date	9/7/2012	
Definitization Date	4/10/2013	
Order Number		
CAGE Code/CAGE Legal Name	7Y193/Raytheon Company	
Contract Title	FAB-T CPT Development	
Contract Address	Raytheon 1001 Boston Post Road E, Marlborough, MA 01751-1377	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Contract Price	Current Target Price	
70.0	230.2	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contract's EAC	PM's EAC	
230.2	230.2	
Initial Quantity	Current Quantity	Delivered Quantity
13	13	7
BAC	BCWP	ACWP
N/A	N/A	N/A
BCWS	Cost Variance	Schedule Variance
N/A	N/A	N/A

Contract Notes

Total Quantity for the Development contract is 13 Raytheon EDMs. Seven of the Raytheon EDMs have been delivered to the Government, and six EDMs have been retained by Raytheon for testing purposes.

Contract Data (\$TYM)		
Contract Number	FA8705-13-C-0005	
Effort Number		
Modification Number		
Contract Type	FFP	
Award Date	9/27/2013	
Definitization Date	6/2/2014	
Order Number		
CAGE Code/CAGE Legal Name	7Y193/Raytheon Company	
Contract Title	FAB-T CPT Production	
Contract Address	Raytheon 1001 Boston Post Road E, Marlborough, MA 01751-1377	
Contracts/Effort Price, Quantity, and Performance (\$M)		
Initial Target Price	Current Target Price	
298.5	480.0	
Initial Ceiling Price	Current Ceiling Price	
N/A	N/A	
Contract's EAC	PM's EAC	
480.0	480.0	
Initial Quantity	Current Quantity	Delivered Quantity
84	84	71
BAC	BCWP	ACWP
N/A	N/A	N/A
BCWS	Cost Variance	Schedule Variance
N/A	N/A	N/A

Contract Notes

The difference between the Initial Target Price and the Current Target Price is due to price increase of modification kits which are greater than the new antenna costs. The total quantity of 84 has not changed. Delivered quantity reflects completed deliveries as of March 21, 2022.

Technologies and Systems Engineering

Significant Technical Risks

NOTE: This program's Significant Technical Risks are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Deliveries and Expenditures

Deliveries

Delivered to Date	Planned to Date	Actual to Date	Total Quantity	Percent Delivered
Development	25	25	25	100.00%
Production	71	71	84	84.52%
Total Program Quantity Delivered	96	96	109	88.07%

Expended and Appropriated (TY \$M)

Total Acquisition Cost: 1,876.1

Total Funding Years: 27

Years Appropriated: 22 (2001-2022)

Percent Years Appropriated: 81.48%

Appropriated to Date: 1,797.80

Percent Appropriated: 95.83%

NOTE: This program’s Expended to Date and Percent Expended values are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.

Deliveries and Expenditures Notes:

For CPT there is a total of 109 systems, which includes 25 Engineering Development Models (EDMs) (12 Boeing and 13 Raytheon) and 84 production systems. 71 Production terminals have been delivered under the Raytheon contract. All quantities shown reflect the program baseline as approved in the Milestone C ADM.

Low Rate Initial Production

Item	Initial LRIP Decision	Current Total LRIP
Approval Date	7/5/2009	2/7/2019
Approved Quantity	101	84
Reference	Acquisition Strategy Production Phase Addendum	FAB-T CPT Acquisition Decision Memorandum
Start Year	2010	2015
End Year	2012	2022

Rationale if Current Total LRIP Quantity exceeds 10% of total Procurement quantities:

The Current Total LRIP Quantity is more than 10% of the total production quantity and was increased from 53 to 84 units by the MDA on February 7, 2019 to avoid program impacts and additional cost of a break in production.

Operating and Support Costs

Total Program O&S Cost Compared with Baseline

	Current APB Objective (BY2015\$)	Current APB Threshold (BY2015\$)	Current Estimate (BY2015\$)	Current Estimate (TY\$)	Deviation
Total O&S (\$Millions)	1,059.5	1,165.5	533.739	783.965	

O&S Cost Notes

NOTE: This program's O&S Cost Breakdown values are Controlled Unclassified Information (CUI) and have been removed per paragraph (i) of title 10 United States Code 4351 which required the SAR be submitted without any designation relation to dissemination control.